



## AUSTRALASIAN SOCIETY FOR IMMUNOLOGY, INC.

SA/NT branch

Frome Road, Adelaide, South Australia  
PO Box 14, Rundle Mall, SA 5000

### Day of Immunology

(Hosted by The Australasian Society For Immunology)

29<sup>th</sup> April 2008

South Australian Museum

(Main Foyer)

11am-2pm

**Public Lecture (Pacific Cultures Gallery): 12-1PM**

#### Presenters

**Dr. Susanne Heinzl (Vaccine development):** Dr. Heinzl works for Vaxine, a South Australian biotech company working on vaccine development. She aims to develop safer and more effective vaccines for infectious diseases.

**Dr. Shaundee Sen (Kidney failure):** Dr. Sen works in the Renal and Transplantation Unit at the Queen Elizabeth Hospital. Dr. Sen will address the profound impact immunology has had on the history of renal diseases, including Bright's Disease and Glomerulonephritis, and more recently through transplantation.

**Dr. Wendy Ingman (Fertility):** Dr. Ingman works at the University of Adelaide. Her research investigates the role of the immune system in reproductive health.

#### Topics of interest

##### Vaccination

One of the ways that our body can be protected against deadly infections is through vaccination. **Vaccination** (also called **immunization**) is the process of ensuring that the body's immune system is familiarized with the infectious agent to allow rapid detection and killing of the active microbe should we become infected. **Immunologists** study the mechanisms by which infectious diseases work and develop vaccines to fight the diseases. By doing this they design better ways of halting deadly infections including HIV, malaria and avian influenza. Professor Ian Frazer (an immunologist and Australian of the Year 2006) has also recently developed a vaccine against cervical cancer as this particular cancer results from a Papilloma virus infection. Vaccination against this virus prevents women from developing cervical cancer.

##### Kidney Diseases

In some cases, instead of protecting us from infection the immune system can react in ways that cause disease. These reactions include those that cause kidney disease, often referred to as Bright's Disease. One of the major causes of kidney disease is **inflammation** of glomeruli, which are very small blood vessels that help to filter the blood. Often the exact causes of this disease, commonly called Glomerulonephritis are not known. **Immunologists** study the causes of diseases such as Glomerulonephritis and aim to design ways to control the immune system and stop unwanted immune reactions.

Understanding how the immune system works is also important for the successful transplantation of organs. When a kidney is transplanted from a donor to a recipient, the **immune system** often recognises the new healthy kidney as foreign and tries to reject it. Presently transplant recipients need to take strong medication that

suppresses the immune system so the new tissue is not rejected. **Immunologists** study the reasons why the immune system rejects healthy tissue and aim to develop better ways to control immune reactions against transplants.

### **Fertility**

Control of the **immune system** is crucial for the successful development of the unborn child. The developing embryo inherits a mixture of genetic material (DNA) from mother and father, therefore half the tissue of the embryo will be foreign to the mother (analogous to the situation with organ transplantation). It is therefore important that a mother's immune system does not react against this "foreign" material. **Immunologists** study the mechanisms that protect the unborn foetus from the mothers immune system and the reasons why sometimes these mechanisms fail.